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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/764,208	01/19/2001	Jae-Choon Lee	0630-1210P	7426

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EXAMINER

LEVI, DAMEON E

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 12/14/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/764,208

Applicant(s)

HWANG ET AL.

Examiner

Dameon E Levi

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "power pin" in **claim 3** is used by the claim to mean "a power board," while the accepted meaning is "power pin." The language is ambiguous and mis-descriptive.

The claims are generally narrative and indefinite, failing to conform to current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. The phrase, "thereby reducing the pins in number of the socket" in **claim 5** is an example of narration and indefiniteness.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al US Patent 5,295,044 in view of Umeda US Patent 5,398,160.

Regarding claim 1, Araki et al discloses a semiconductor device comprising:

- a ceramic PCB and an epoxy PCB disposed inside a module body
(see column 9, lines 38-42 , elements 43, 44 Fig 6)
- a power element and signal elements respectively mounted on the
upper portion of each PCB (see column 10, lines 20-22 and 28-30)
- a groove made at the lower side surface and the middle side surface of
the module body (see element(s) 71 Fig 2).
- The examiner notes that a socket placed between two PCBs for
connection purposes is conventional in the art and is deemed only as
an alternate means.

Araki et al does not disclose:

- a power pin for receiving a power signal from an external source
mounted on the ceramic PCB;
- a signal pin for receiving various signals from an external source
mounted on the epoxy PCB

Umeda discloses a pin arrangement as disclosed by the applicant (see elements
15 and 18, Fig. 4, column 1: lines 46-48 and lines 59-60)

Accordingly, it would have been obvious to one of ordinary skill in the art
at the time the invention was made to mount the power and signal pins upon the
ceramic and epoxy PCBs respectively for the purpose of ensuring direct and
reliable signal transmission and electrical conductivity between the respective

circuits and the corresponding external devices or circuits to which they are connected.

Regarding claim 2, the examiner notes that aluminum wire bonding and gold wire bonding to mount elements on PCBs is conventional in the art because of the good electrical conductivity and high reliability properties of aluminum and gold.

Regarding claim 3, and, as best understood by the examiner, the mounting of power and signal pins to PCBs by the technique of soldering is conventional in the art.

Regarding claim 4, as best understood by the examiner, Araki et al discloses the instant claimed invention except;

- the power pin is mounted on the ceramic PCB;
- the signal pin is mounted on the epoxy PCB.

Umeda discloses a pin arrangement as disclosed by the applicant (see elements 15 and 18, Fig. 4, column 1 lines 46-48 and lines 59-60).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to mount the power and signal pins upon the ceramic and epoxy PCBs respectively for the purpose of ensuring direct and reliable signal transmission and electrical conductivity between the respective PCBs and the corresponding external devices or circuits to which they are connected.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Araki et al US Patent 5,295,044 discloses a semiconductor device.

Umeda US Patent 5,398,160 discloses a compact power module with a heat spreader


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dameon E Levi whose telephone number is (703) 305-0426. The examiner can normally be reached on Mon.-Fri. (9:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (703) 308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0058.

Dameon E Levi
Examiner
Art Unit 2841

DL
December 5, 2001


Jayprakash N. Gandhi
Primary Examiner
Technology Center 2800